- The distances from the detected positions of the optical images to a set of positions on the object are measured, thereby obtaining three-dimensional information about the object. (20p)

OPD - 1985-12-10

AN   - 1987-164699 [24]

PN   - JP62291512 A 19871218

PD   - 1987-12-18

AP   - JP19860136764 19860611

IN   - TANMACHI MASAHIRO; others02

PA   - CANON INC

TI   - DISTANCE MEASURING APPARATUS

AB   - PURPOSE:To obtain an apparatus available constantly for high-accuracy measurements and 3-dimensional informations, etc. of an object in comparatively short time, by installing a mask forming a pattern light flux and an elliptical reflecting mirror etc., oriented to the mask to the mask of a beam of light from a light source.

- CONSTITUTION:A light flux that passed light-transmitting uni61, 65 from a light source 3 develops light images in positions P1, P2 on an object 5 after passing through a lens 1. Next, after passing through a lens 3 respectively, it develops light images in positions D1, D2 in an image sensor 4. An output wave form of this sensor 4 is observed by an image-processing apparatus for obtaining distance up to an image position on the surface of the object 5. And, on this apparatus, the light source 3 is set part from the mask 6 and outside a light path of a light flux reflected by an elliptic reflecting mirror 7 oriented to the mask 6 of a beam of light from the light source 3. Thus, only such a light flux which came from the specified direction is admitted into a light-transmitting unit 61, 62,...65. Further, the light-source 3 is set in the first focus of the reflecting mirror 7 and the center of incident pupil of the lens 1 in rough vicinity of the second focus of the mirror 7 and thus, all light fluxes obtainable by the mask 6 is irradiated on the object 5.

I   - G01C3/06 ;G01B11/00 ;G02B7/11 ;H04N5/232

PR   - JP19860136764 19860611

OPD - 1986-06-11

TI   - DISTANCE MEASURING APPARATUS

IN   - TANMACHI MASAHIRO;YAMADA SHIGERU;SAKAMOTO YASUAKI

PA   - CANON KK

IC   - G01B11/00 ; G01C3/06 ; G02B7/11 ; H04N5/232

TI   - Three=dimensional object sensor esp. for robot - uses triangulation
           to compute data from distances between several images and
           origins on object

PR   - JP19860136764 19860611;JP19850276084
           19851210;JP19860027912 19860213;JP19860136762
           19860611;JP19860136763 19860611

PN   - DE3642051 A 19870611 DW198724 021pp
           - FR2591329 A 19870612 DW198730 000pp
           - JP62291512 A 19871218 DW198805 000pp
           - US4867570 A 19890919 DW198947 020pp

PA   - (CANO) CANON KK

IC   - B25J19/02 ;G01B11/02 ;G01C3/06 ;G02B7/11 ;G06K9/74
           ;H04N5/23

IN   - SAKAMOTO Y; SORIMACHI K; YAMADA S

AB   - DE3642051 A projector (3,5) projects several imaging rays through
           a lens (1) onto an object (6). The rays are reflected by the object
           through a second lens (2) onto a detector (4) which detects the
           positions of the images (D).
           - The two lenses pref. have the same focal lengths, their principal
           planes are pref. aligned and their optical axes are parallel to each
           other. The projection may have a single light source and a mash
           with several apertures or several point sources. The distances
           from the images to their origins on the object are measured and
           three-dimensional information is obtained by triangulation.
           - USE/ADVANTAGE - For robots etc. fast and accurate irrespective
           of the nature of the object.(1/12)

USAB - US4867570 The three dimensional processing method includes a
           first optical system, a projection device, a second optical system,
           and an image sensor. A set of pattern beams are radiated onto the
           object through the first optical system. Optical images formed by